

Appl. No. 10/707,361
Amdt. Dated September 20, 2006
Reply to Office Action of August 4, 2006

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Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A method for manufacturing a light guide plate, comprising:

providing a mold;

melting a resin material and mixing a noble inert gas into the molten resin material, ~~the inert gas being selected from the group consisting of noble gases and nitrogen gas~~;

injecting the mixture of the molten resin material and the noble inert gas into a cavity of the mold;

cooling the mold under a constant pressure; and

demolding and taking the light guide plate out from the mold.

Claim 2 (previously presented): The method for manufacturing a light guide plate as recited in claim 1, wherein the noble gas is one of argon (Ar), helium (He), and neon (Ne).

Claim 3 (currently amended): The method for manufacturing a light guide plate as recited in claim 1, further comprising the step of heating the noble inert gas before mixing the noble inert gas into the molten resin material.

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Claim 4 (currently amended): The method for manufacturing a light guide plate as recited in claim 3, wherein the noble inert gas is heated to a temperature in the range from 100~120°C.

Claim 5 (currently amended): The method for manufacturing a light guide plate as recited in claim 4, wherein the noble inert gas is heated to a temperature of 110°C.

Claim 6 (currently amended): The method for manufacturing a light guide plate as recited in claim 1, wherein when the mixture of the molten resin material and the noble inert gas is injected into the cavity, a viscosity of the molten resin material is in the range from 50~5000 Pa.sec.

Claim 7 (original): The method for manufacturing a light guide plate as recited in claim 6, wherein said viscosity of the molten resin is in the range from 200~1000 Pa.sec.

Claim 8 (previously presented): The method for manufacturing a light guide plate as recited in claim 1, wherein the mold is made of a metal having a high coefficient of heat transfer.

Claim 9 (original): The method for manufacturing a light guide plate as recited in claim 8, wherein the mold is made of copper, a copper alloy, or beryllium copper.

Claim 10 (original): The method for manufacturing a light guide plate as recited in claim 1, wherein the mold is made of nickel, a nickel-cobalt alloy, silicon carbide, chrome, or titanium carbide.

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Claim 11 (original): The method for manufacturing a light guide plate as recited in claim 1, wherein the resin material is methacrylate resin.

Claim 12 (previously presented): The method for manufacturing a light guide plate as recited in claim 11, wherein a melting temperature of the methacrylate resin is in the range from 170~300°C.

Claim 13 (original): The method for manufacturing a light guide plate as recited in claim 12, wherein said temperature is in the range from 230~260°C.

Claim 14 (currently amended): A method of making an optical element via injection molding, comprising steps of:

injecting melted resin material mixed with at least one noble inert gas into a mold, ~~the inert gas being selected from the group consisting of noble gases and nitrogen gas;~~

cooling the mold; and

obtaining a molded optical element essentially made of resin with said at least one noble inert gas involved therewith, wherein said molded optical element has a smaller density than those made of resin via injection molding without any inert gas involved therewith.

Claim 15 (currently amended): The method as described in claim 14, wherein a viscosity of said melted resin material is reduced via said at least one noble inert gas during molding.